



DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
WASHINGTON, D.C. 20310-2600

**REPLY TO
ATTENTION OF**

CECW-PM (1105-21-10a)

22 JUL 2003

SUBJECT: South River, Raritan River Basin, New Jersey

THE SECRETARY OF THE ARMY

1. I submit for transmission to Congress my report on hurricane and storm damage reduction and ecosystem restoration along the South River in Middlesex County, New Jersey. It is accompanied by the report of the district and division engineers. These reports are in response to a resolution by the Committee on Public Works and Transportation of the House of Representatives adopted 13 May 1993. The resolution requested a review of existing reports on the Raritan River Basin, New Jersey, to determine whether any modifications of the recommendations contained therein are advisable at the present time in the interest of flood control and related purposes on the South River, New Jersey. Pre-construction engineering and design (PED) activities for this proposed project will be continued under the resolution cited above.

2. The reporting officers recommended implementation of a combined plan that provides both hurricane and storm damage reduction (HSDR) and environmental restoration features.

a. The HSDR features consist of a levee and floodwall system along the eastern and western banks of the lower South River with an upstream storm surge barrier across the South River, located just downstream of the Veterans Memorial Bridge. The proposed project would provide a high level of protection from hurricane and storm damages to the communities of South River, Sayreville, East Brunswick and Old Bridge, New Jersey. The annual probability of coastal storm damages would be reduced from a 1-in-2 to a 1-in-500 chance in any year. The proposed project includes approximately 10,700 feet of levees and approximately 1,650 feet of floodwalls. The storm surge barrier will span the South River for a length of 320 feet and will have a clear opening of 80 feet. The inclusion of the storm surge barrier would provide a comprehensive protection system to the area and reduce adverse impacts on wetlands. To prevent induced flooding in the areas protected by the levees and floodwalls, facilities including diversion pipes and gravity outlets are included in the levees and floodwalls. A 1,200 cfs pumping station and box culverts are included with the storm surge barrier to prevent flooding caused by the back up of the South River flows when the storm surge barrier is closed. Even though the selected hurricane and storm damage reduction plan was specifically designed to avoid and minimize environmental impacts, there would be some unavoidable impacts to the natural resources, which

would be offset by providing mitigation. The selected mitigation plan would involve the conversion of 11.1 acres of *Phragmites* degraded wetlands to a combination of wetland scrub-shrub (7.8 acres) and salt marsh (3.3 acres) habitats.

b. The recommended plan also includes restoration of approximately 379 acres of wetlands degraded by severe *Phragmites* colonization to increase biodiversity and ecological functions. These areas are located principally on Clancy Island between the Washington Canal, the South River, and the Raritan River, and on the west bank of the South River adjacent to the Veterans Memorial Bridge. Significant features of the restoration plan include: controlling *Phragmites* by excavation, burning, spraying, or other measures; excavation of soil material to establish salt marsh hydrology favorable to *Spartina* and poorly suited for *Phragmites*; enlarging and increasing the sinuosity of existing channels, creating more natural channel morphology and increasing tidal flushing on the marsh surface; developing low emergent marsh habitat to transition between a large expanse of mudflat habitat and wetland forest/scrub-shrub habitat, and planting native vegetation to speed restoration and prevent re-establishment of *Phragmites*. The plan will restore the following habitats: low emergent marsh (152 acres: 40 percent), wetland forest/scrub-shrub (170 acres: 45 percent; plus an additional 19 acres, or 5 percent, as upland forest/scrub-shrub), mudflat (19 acres: 5 percent), and open water (19 acres: 5 percent).

3. Based on October 2002 price levels, the first cost of the project is \$103,268,000: hurricane and storm damage reduction features are estimated to be \$55,172,000 and ecosystem restoration features are estimated to be \$48,096,000. Based on the cost sharing principles specified by the Water Resources Development Act (WRDA) of 1986, as amended by Section 210 of WRDA 1996, 65 percent (\$67,124,000) of the project first costs for both HSDR features and ecosystem restoration features would be Federal and 35 percent (\$36,144,000) would be non-Federal. The non-Federal sponsor would also be responsible for all costs related to operation, maintenance, repair, rehabilitation, and replacement (OMRR&R) of the completed project. Of the non-Federal share, the total cash contribution required would be \$26,721,000. The balance of the non-Federal share would consist of \$9,423,000 for the estimated creditable value for lands, easements, rights-of-way, relocations, and suitable disposal/borrow areas (LERRD).

4. Based on a discount rate of 5.875 percent and a 50-year period of economic analysis, average annual hurricane and storm damage reduction benefits are estimated at \$9,161,000 and average annual costs are estimated at \$4,139,000. The equivalent annual net benefits are \$5,022,000, and the resulting benefit-to-cost ratio is 2.2 to 1. Annual OMRR&R costs for the hurricane and storm damage features are estimated at \$221,000. The total first cost of restoration of 379 acres of degraded wetlands would result in an increase in the habitat value of the area of 335 average annual habitat units (AAHU). To ensure that an efficient environmental restoration plan was recommended, cost effectiveness and incremental analysis techniques were used to evaluate alternative restoration plans. The cost of the recommended environmental restoration features is justified by the restoration of about 335 AAHU and provides for achieving habitat increases in the most cost-effective manner. These restored habitats are considered especially valuable due to

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scarcity and dependence of certain species on these resources. Average annual costs are estimated at \$3,486,000, or approximately \$10,400 per AAHU. Annual OMRR&R costs for the ecosystem restoration features are estimated at \$78,800. The recommended plan is a combination of the national economic development (NED) plan and the national ecosystem restoration (NER) plan.

5. Washington level review indicates that the plan developed is technically sound, economically justified, and socially and environmentally acceptable. The plan conforms to essential elements of the U.S. Water Resources Council's Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies and complies with other administration and legislative policies and guidelines. Also, the views of interested parties, including Federal, State, and local agencies have been considered.

6. I concur with findings, conclusions, and recommendations of the reporting officers. Accordingly, I recommend construction of this project for hurricane and storm damage reduction and ecosystem restoration in accordance with the reporting officers' recommended NED and NER plan with such modifications as in the discretion of the Chief of Engineers may be advisable. Also, this recommendation is subject to the non-Federal sponsor agreeing to comply with all applicable Federal laws and policies and other requirements including but not limited to:

a. Provide all lands, easements, rights-of-way, relocations, and disposal/borrow areas (LERRD) uncontaminated with hazardous and toxic wastes.

b. Provide an additional cash contribution if the value of LERRD contributions toward total project costs is less than 35 percent, so that the total share equals 35 percent.

c. Provide all improvements required on lands, easements, and rights-of-way to enable the proper disposal of dredged or excavated material associated with the construction, operation, and maintenance of the project. Such improvements may include, but are not necessarily limited to, retaining dikes, wasteweirs, bulkheads, embankments, monitoring features, stilling basins, and dewatering pumps and pipes.

d. For so long as the project remains authorized, operate, maintain, repair, replace, and rehabilitate (OMRR&R) the completed project, or functional portion of the project, including mitigation features, at no cost to the Government, in a manner compatible with the project's authorized purposes and in accordance with applicable Federal and State laws and any specific directions prescribed by the Government in the OMRR&R manual and any subsequent amendments thereto.

e. Provide the Federal Government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-Federal project partner, now or hereafter, owns or controls for access to the Project for the purpose of inspection, and, if necessary after failure to

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perform by the non-Federal project partner, for the purpose of completing, operating, maintaining, repairing, replacing, or rehabilitating the Project. No completion, operation, maintenance, repair, replacement, or rehabilitation by the Federal Government shall operate to relieve the non-Federal project partner of responsibility to meet the non-Federal project partner's obligations, or to preclude the Federal Government from pursuing any other remedy at law or equity to ensure faithful performance.

f. Hold and save the United States free from all damages arising from the construction, operation, maintenance, repair, replacement, and rehabilitation of the Project and any Project-related betterments, except for damages due to the fault or negligence of the United States or its contractors.

g. Keep, and maintain books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to the Project for a minimum of three years after completion of the accounting for which such books, records, documents, and other evidence is required, and, in accordance with the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments at 32 Code of Federal Regulations (CFR) Section 33.20.

h. Perform, or cause to be performed, any investigations for hazardous substances as are determined necessary to identify the existence and extent of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Public Law 96-510, as amended, 42 U.S.C. 9601-9675, that may exist in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be required for the construction, operation, and maintenance of the Project. However, for lands that the Federal Government determines to be subject to the navigational servitude; only the Federal Government shall perform such investigations unless the Federal Government provides the non-Federal project partner with prior specific written direction, in which case the non-Federal project partner shall perform such investigations in accordance with such written direction.

i. Assume complete financial responsibility, as between the Federal Government and the non-Federal project partner for all necessary cleanup and response costs of any CERCLA-regulated materials located in, on, or under lands, easements, or rights-of-way that the Federal Government determines to be necessary for the construction, operation, or maintenance of the Project.

j. As between the Federal Government and the non-Federal project partner, the non-Federal project partner shall be considered the operator of the Project for the purpose of CERCLA liability. To the maximum extent practicable, operate, maintain, repair, replace and rehabilitate the Project in a manner that will not cause liability to arise under CERCLA.

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k. Comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended by Title IV of the Surface Transportation and Uniform Relocation Assistance Act of 1987 (Public Law 100-17), and the Uniform Regulations contained in 49 CFR Part 24, in acquiring lands, easements, and rights-of-way, required for the construction, operation, and maintenance of the Project, including those necessary for relocations, borrow materials, and dredged or excavated material disposal, and inform all affected persons of applicable benefits, policies, and procedures in connection with said act.

l. Comply with all applicable Federal and State laws and regulations, including, but not limited to, Section 601 of the Civil Rights Act of 1964, Public Law 88-352 (42 U.S.C. 2000d), and Department of Defense directive 5500.11 issued pursuant thereto, as well as Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army" and all applicable Federal labor standards and requirements, including but not limited to 40 U.S.C. 3141-3148 and 40 U.S.C. 3708 (revising, codifying and enacting without substantial change the provisions of the Davis-Bacon Act (formerly 40 U.S.C. 276a *et seq.*), the Contract Work Hours and Safety Standards Act (formerly 40 U.S.C. 327 *et seq.*) and the Copeland Anti-Kickback Act (formerly 40 U.S.C. 276c)).

m. Provide the non-Federal share of that portion of the costs of mitigation and data recovery activities associated with historic preservation, that are in excess of 1 percent of the total amount authorized to be appropriated for the Project, in accordance with the cost sharing provisions of the agreement.

n. Participate in and comply with applicable Federal floodplain management and flood insurance programs and comply with the requirements in Section 402 of the Water Resources Development Act of 1986, as amended.

o. Not less than once each year inform affected interests of the extent of protection afforded by the Project.

p. Provide and maintain necessary access roads, parking areas, and other public use facilities, open and available to all on equal terms.

q. Enter into an agreement, which provides, prior to construction, 25 percent of preconstruction, engineering and design costs for HSDR features and 25 percent for ecosystem restoration features.

r. Provide, during the first year of construction, any additional funds needed to cover the non-Federal share of PED costs.

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s. Comply with Section 221 of Public Law 91-611, Flood Control Act of 1970, as amended, and Section 103 of the Water Resources Development Act of 1986, Public Law 99-662, as amended, which provides that the Secretary of the Army shall not commence the construction of any water resources project or separable element thereof, until the non-Federal project partner has entered into a written agreement to furnish its required cooperation for the project or separable element.

t. Prevent obstructions of or encroachments on the project (including prescribing and enforcing regulations to prevent such obstructions or encroachments), which might reduce the project effectiveness, hinder its operation and maintenance, or interfere with its proper function, such as any new development on project lands or the addition of facilities, which would degrade the benefits of the project.

u. Do not use Federal funds to meet the non-Federal sponsor's share of total project costs unless the Federal granting agency verifies in writing that the expenditure of such funds is authorized.

7. The recommendation contained herein reflects the information available at this time and current departmental policies governing formulation of individual projects. It does not reflect program and budgeting priorities inherent in the formulation of a national civil works construction program nor the perspective of higher review levels within the executive branch. Consequently, the recommendation may be modified before it is transmitted to Congress as a proposal for authorization and implementation funding. However, prior to transmittal to Congress, the sponsor, the State of New Jersey Department of Environmental Protection; interested Federal agencies; and other parties will be advised of any significant modifications and will be afforded an opportunity to comment further.

A handwritten signature in black ink, appearing to read "Robert B. Flowers", with a long, sweeping horizontal line extending to the left.

ROBERT B. FLOWERS
Lieutenant General, U.S. Army
Chief of Engineers